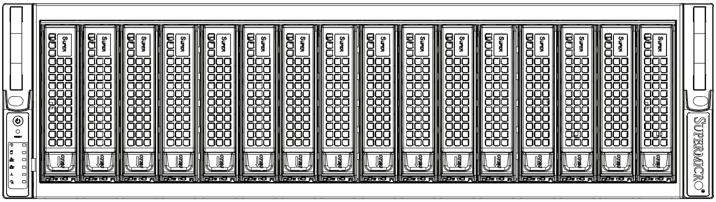
SC936 CHASSIS SERIES



SC936A-R900B

SC936E1-R900B

SC936E2-R900B

USER'S MANUAL

1.0a

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Manual Revision 1.0a
Release Date:June 13, 2008

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SC936 chassis. Installation and maintenance should be performed by experienced technicians only.

This Supermicro SC936 chassis features a unique and highly-optimized design with Intel/AMD based DP, UP processors The chassis is equipped with a 900W high efficiency power supply. High performance fans provide ample optimized cooling for FB-DIMM memory modules and hot-swappable drive bays offer maximum storage capacity.

This document lists compatible parts available when this document was published. Always refer to the our Web site for updates on supported parts and configurations.

Manual Organization

Chapter 1 Introduction

The first chapter provides a checklist of the main components included with this chassis and describes the main features of the SC936 chassis. This chapter also includes contact information.

Chapter 2 System Safety

This chapter lists warnings, precautions, and system safety. It recommended that you thoroughly familiarize yourself installing and servicing this chassis safety precautions.

Chapter 3 System Interface

Refer here for details on this chassis model including the control panel buttons , LEDs and drives

Chapter 4 Chassis Setup and Maintenance

Follow the procedures given in this chapter when installing, removing, or reconfiguring your chassis.

Chapter 5 Rack Installation

Refer to this chapter for detailed information on chassis rack installation. You should follow the procedures given in this chapter when installing, removing or reconfiguring your chassis into a rack environment.

Appendices

This section lists compatible cables, power supply specifications, and compatible backplanes. Not all compatible backplanes are listed. Refer to our Web site for the latest compatible backplane information.

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Chapter 1

Introduction

1-1 Overview

Supermicro's SC936 3U chassis features a unique and highly-optimized design. The chassis is equipped with high-efficiency redundant power supplies. High-performance fans provide ample optimized cooling for FB-DIMM memory modules and four hot-swappable drive bays offer maximum storage capacity.

1-2 Shipping List

Part Numbers

Please visit the following link for the latest shipping lists and part numbers for your particular chassis model http://www.supermicro.com/

SC936A Chassis

Model	CPU	HDD	I/O Slots	Power Supply
SC936-R900B	Intel/AMD Based DP UP Processor	16x SAS Drive Bays	7 FF Expansion Slots	900W (Redundant)

SC936E1 Chassis

Model	CPU	HDD	I/O Slots	Power Supply
SC936E1-R900B	Intel/AMD Based DP UP Processor	16x SAS/SATA Drive Bays	7 FF Expansion Slots	900W (Redundant)

SC936E2 Chassis

Model	CPU	HDD	I/O Slots	Power Supply
SC936E2-R900B	Intel/AMD Based DP UP Processor	16x SAS/SATA Drive Bays	7 FF Expansion Slots	900W (Redundant)

Legend:
DP = Dual Processor Support
FF = Full-height, Full-length
UP = Single Processor Support

1-3 Where to get Replacement Components

Though not frequently, you may need replacement parts for your system. To ensure the highest level of professional service and technical support, we strongly recommend purchasing exclusively from our Supermicro Authorized Distributors / System Integrators / Resellers. A list of Supermicro Authorized Distributors / System Integrators /Reseller can be found at: http://www.supermicro.com. Click the Where to Buy link.

1-4 Contacting Supermicro

Headquarters

Address: Super Micro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.
Tel: +1 (408) 503-8000
Fax: +1 (408) 503-8008
Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)
Web Site: www.supermicro.com

Europe

Address: Super Micro Computer B.V.
Het Sterrenbeeld 28, 5215 ML
's-Hertogenbosch, The Netherlands
Tel: +31 (0) 73-6400390
Fax: +31 (0) 73-6416525
Email: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)

Asia-Pacific

Address: Super Micro Computer, Inc.
4F, No. 232-1, Liancheng Rd.
Chung-Ho 235, Taipei County
Taiwan, R.O.C.
Tel: +886-(2) 8226-3990
Fax: +886-(2) 8226-3991
Web Site: www.supermicro.com.tw
Technical Support:
Email: support@supermicro.com.tw
Tel: 886-2-8226-1900

1-5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

Whenever possible, repack the chassis in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the chassis securely, using packaging material to surround the chassis so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Chapter 2

System Safety

2-1 Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following the steps in order given should enable you to have your chassis setup and operational within a minimal amount of time. This quick set up assumes that you are an experienced technician, famailiar with common concepts and terminology.

2-2 Warnings and Precautions

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with carrier who delivered your system.

Decide on a suitable location for the rack unit that will hold that chassis. It should be situated in a clean, dust-free area that is well venilated. Avoid areas where heat, electrical noise and eletromagnetic fields are generated.

You will also need it placed near at least one grounded power outlet. When configured, the SC936 chassis includes two power supplies. "R" models a redundant power supply and require two grounded outlets.

2-3 Preparing for Setup

The SC936 Chassis includes a set of rail assemblies, including mounting brackets and mounting screws you will need to install the system into a rack. Please read this manual in its entirety before you begin the installation procedure.

2-4 Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the SC936 from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly disconnect the power from the system.

- Do not work alone when working with high voltage components.

- Power should always be disconnected from the system when removing or installing main system components, such as the motherboard, memory modules, DVD-ROM and floppy drives (not necessary for hot swappable drives). When disconnecting power, you should first power down the system with the operating system and then unplug the power cords from all the power supply modules in the system.

- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power, if necessary.

- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- The power supply power cord must include a grounding plug and must be plugged into grounded electrical outlets.

- Motherboard Battery: CAUTION - There is a danger of explosion if the on-board battery is installed upside down, which will reverse its polarities This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer’s instructions.

- DVD-ROM Laser: CAUTION - This server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

2-5 General Safety Precautions

- Keep the area around the chassis clean and free of clutter.

- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.

- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.

- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.

- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

2-6 System Safety

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- Use a grounded wrist strap designed to prevent static discharge.

- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.

- Touch a grounded metal object before removing any board from its antistatic bag.

- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.

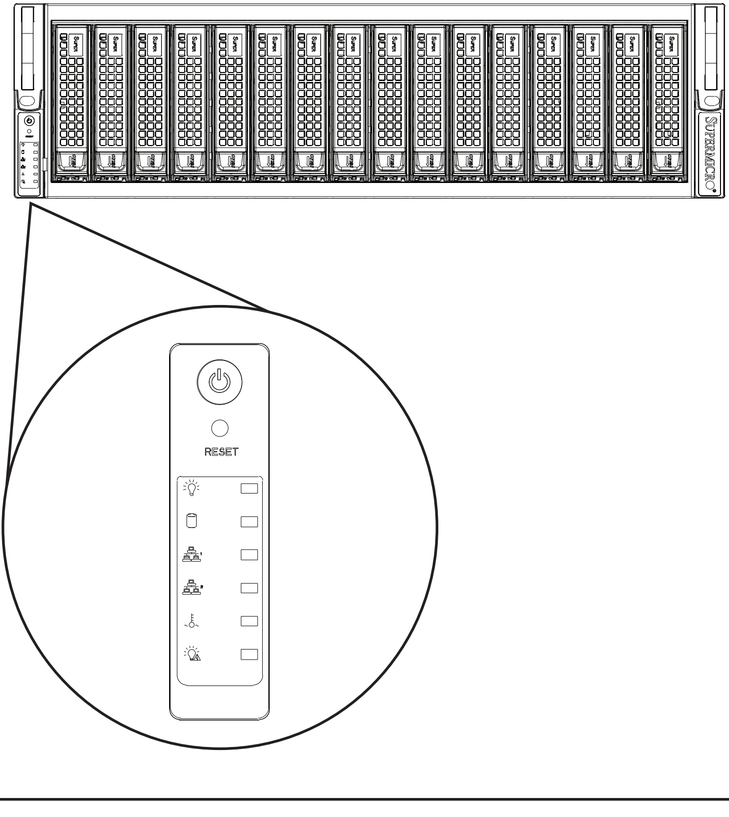
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.

Chapter 3

System Interface

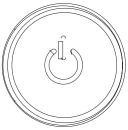
3-1 Overview

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. Most SC936 models have two buttons on the chassis control panel: a reset button and an on/off switch. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

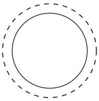


3-2 Control Panel Buttons

There are two push-buttons located on the front of the chassis. These are (in order from left to right) a reset button and a power on/off button.



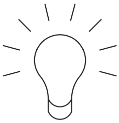
- **Power:** The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.



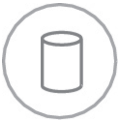
- **Reset:** The reset button is used to reboot the system

3-3 Control Panel LEDs

The control panel located on the front of the SC936 chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.



- **Power:** Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.



- **HDD:** Indicates IDE channel activity. SAS drive, SCSI drive, and/or DVD-ROM drive activity when flashing.

- **NIC1:** Indicates network activity on GLAN1 when flashing.

- **Overheat/Fan Fail:** When this LED flashes it indicates a fan failure. When continuously on (not flashing) it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly. This LED will remain flashing or on as long as the overheat condition exists.

- **Red:** The SAF-TE compliant backplane activates the red LED to indicate a drive failure. If one of the SCSI drives fail, you should be notified by your system management software.

Notes

Chapter 4

Chassis Setup and Maintenance

4-1 Overview

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool you will need to install components and perform maintenance is a Phillips screwdriver. Print this page to use as a reference while setting up your chassis.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.

4-2 Removing the Chassis Cover

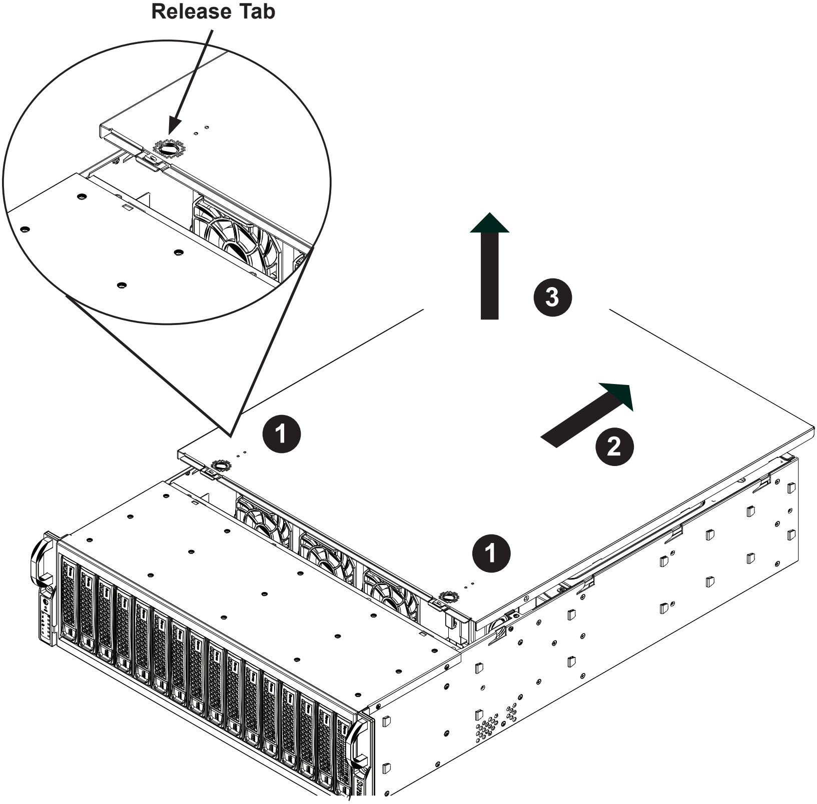


Figure 4-1: Removing the Chassis Cover

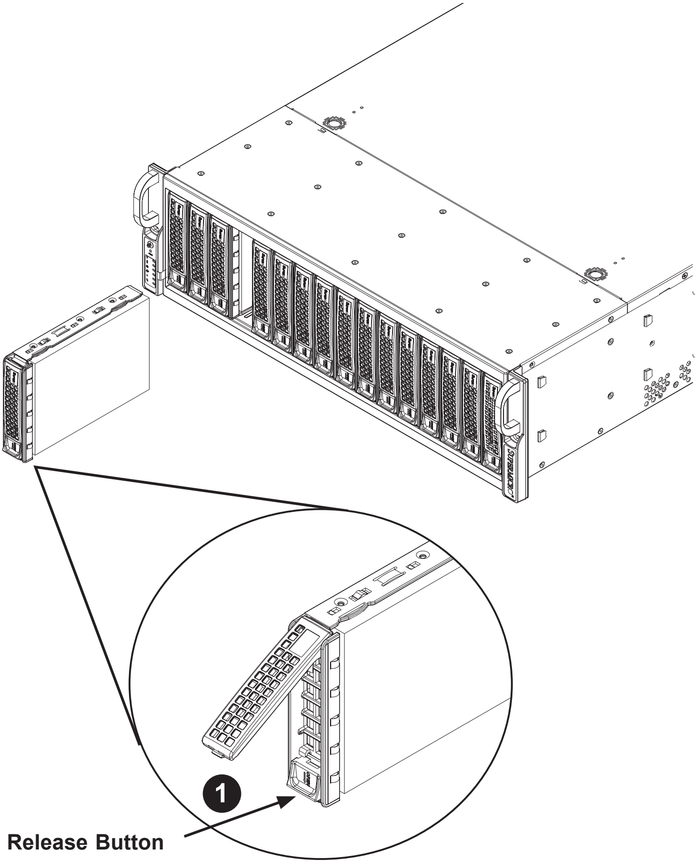
Removing the Chassis Cover:

1. Press the release tabs to remove the cover from the locked position. Press both tabs at the same time.

2. Once the top cover is released from the locked position, slide the cover back toward the rear of the chassis.

3. Lift the cover off the chassis.

⚠ **Warning: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.**



Removing Hard Drive Trays from the Chassis

1. Press the release button on the drive tray. This extends the drive tray handle.

2. Use the handle to pull the drive out of the chassis. The drives are mounted in drive trays to simplify their installation and removal from the chassis. These trays also help promote proper airflow for the drive bays.

Warning: Except for short periods of time (swapping hard drives), do not operate the server with the hard drives empty.

4-3 Installing Hard Drives

Installing a Hard Drive to the Hard Drive Tray

1. Remove the screws securing the dummy drive to the drive tray.
2. Remove the dummy drive. Place the hard drive tray on a flat surface such as a desk, table or work bench.

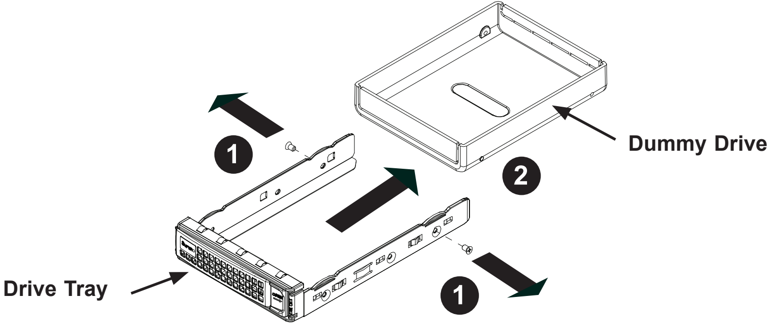


Figure 4-2: Removing the Dummy Drive from Tray

3. Slide the hard drive into the tray with the printed circuit board side facing down.
4. Carefully align the mounting holes in both the drive tray and the hard drive.
5. Secure the hard drive to the tray using the screws provided.
6. Replace the drive tray into the chassis. Make sure to close the drive tray handle to lock the drive tray into place.

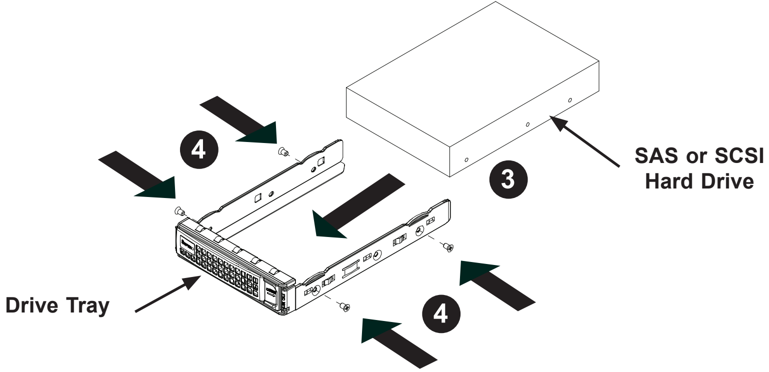


Figure 4-3: Installing the Hard Drive

4-4 Installing the Motherboard

I/O Shield

The I/O shield holds the motherboard ports in place. Install the I/O shield before you install the motherboard.

Installing the I/O Shield:

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.

2. Open the chassis cover.

3. With the illustrations facing the outside of the chassis, place the shield into the space provided.

4. Once installed, the motherboard will hold the I/O shield in place.

Permanent and Optional Standoffs

Standoffs prevent short circuits by securing space between the motherboard and the chassis surface. The SC936 chassis includes permanent standoffs in locations used by most motherboards. These standoffs accept the rounded Phillips head screws included in the SC936 accessories packaging.

Some motherboards require additional screws for heatsinks, general components and/or non-standard security. Optional standoffs are included to these motherboards. To use an optional standoff, you must place the hexagonal screw through the bottom the chassis and secure the screw with the hexagon nut (rounded side up).

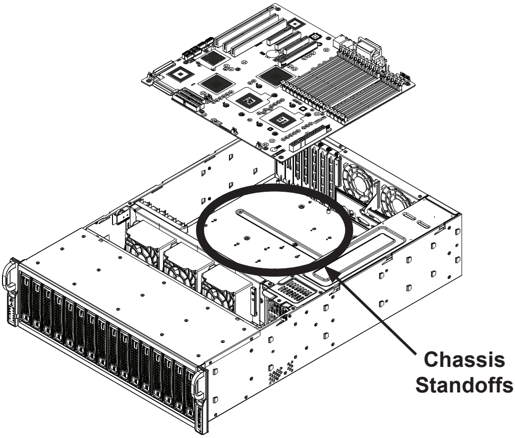


Figure 4-4: Installing the Motherboard

Installing the Motherboard:

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, precautions, and cable connections.

2. Open the chassis cover.

3. As required by your motherboard, install standoffs in any areas that do not have a permanent standoff. To do this:
   A. Place a hexagonal standoff screw through the bottom the chassis.
   B. Secure the screw with the hexagon nut (rounded side up).

4. Lay the motherboard on the chassis aligning the permanent and optional standoffs

5. Secure the motherboard to the chassis using the rounded, Phillips head screws.

6. Secure the CPU(s), heatsinks, and other components to the motherboard as described in the motherboard documentation.

7. Connect the cables between the motherboard, backplane, chassis, front panel, and power supply, as needed. Also, the fans may be temporarily removed to allow access to the backplane ports.

Add-on Card/Expansion Slot Setup

SC936 chassis include I/O slots for add-on cards and expansion cards. It provides seven low-profile add-on card slots.

Installing Add-on and Expansion Cards

1. Disconnect the power supply, lay the chassis on a flat surface, and open the chassis cover.

2. Remove the screw holding the cover in place for each low profile add-on/expansion card slot you want to use. Keep this screw for later use.

3. Connect the add-on cards and/or expansion cards to the mother board.

4. Secure each card to the chassis using the card's L bracket and the screw previously removed.

4-5 Installing the Air Shroud

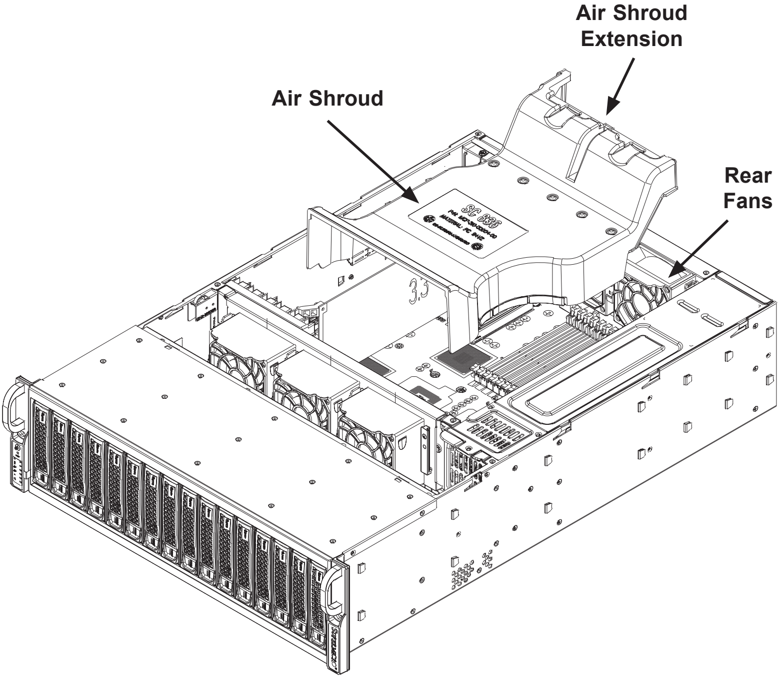


Figure 4-4: Air Shroud for SC936 Chassis

Air shrouds concentrate airflow to maximize fan efficiency. The SC936 chassis air shroud is designed to fit snuggly within the chassis, and does not require tools for setup.

Installing the Air Shroud

1. If necessary, remove the rear fan by pressing the fan release tab and pulling the fan from the chassis.

2. Move the cables from the power supply and power distributor to the bottom of the chassis. You may have to bind the cables together.

3. Slide the air shroud extension into the groove behind the fan closest to the power supply. The extension should almost touch the side of the chassis.

4. Slide the air shroud into the chassis. The air shroud connects to the air shroud extension, the two front fans, and two rear fans.

5. The air shroud includes perforations on the bottom. These perforations can be removed if motherboard components interfere with the air shroud placement. Do not remove more perforations than necessary.

6. Install the rear fans by sliding each fan into the fan housing on the chassis.

Checking the Server's Air Flow

1. Make sure there are no objects to obstruct airflow in and out of the server. In addition, if you are using a front bezel, make sure the bezel's filter is replaced periodically.

2. Do not operate the server without drives or drive trays in the drive bays. Use only recommended server parts.

3. Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

4. The control panel LEDs inform you of system status. See “Chapter 3: System Interface” for details on the LEDs and the control panel buttons.

In most cases, the chassis power supply and fans are pre-installed. If you need to install fans continue to the Systems Fan section of this chapter. If the chassis will be installed into a rack, continue to the next chapter for rack installation instructions.

4-6 System Fans

Five heavy-duty fans provide cooling for the chassis. These fans circulate air through the chassis as a means of lowering the chassis internal temperature.

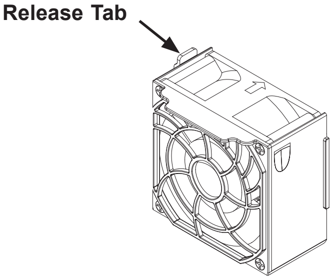


Figure 4-16: System Fan

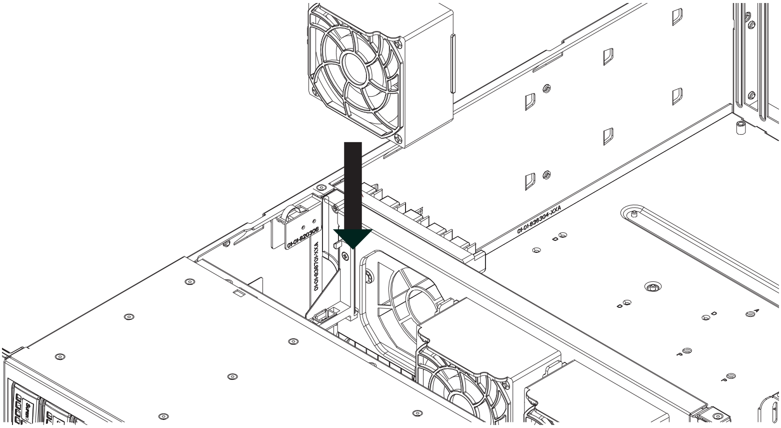


Figure 4-5: Placing the System Fan

Replacing a System Fan

1. If necessary, open the chassis while the power is running to determine which fan has failed. (Never run the server for an extended period of time with the chassis open.)

2. Turn off the power to the system and unplug the system from the outlet.

3. Remove the failed fan's power cord from the motherboard.

4. Press the fan release tab to lift the failed fan from the chassis and pull it completely from the chassis.

5. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.

6. Power-up the system and check that the fan is working properly before replacing the chassis cover.

4-7 Power Supply

The SC936 Chassis has an auto-switching power supply. This enables it to automatically sense and operate at a 100v to 240v input voltage. An amber light illuminates on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

The SC936 chassis includes a redundant power supply that can be changed without powering down the system. In the unlikely event that one is necessary, a new unit can be ordered directly from Supermicro (see contact information in the Preface).

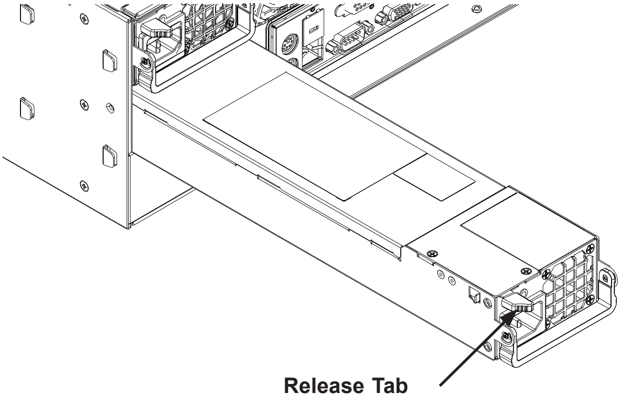


Figure 4-6: Removing the Power Supply

Changing the Power Supply

1. This chassis includes a redundant power supply which allows the server to remain running and one power supply to be removed.

2. Push the release tab on the power supply, as illustrated.

3. Pull the power supply out using the handle provided.

4. Change the failed power module with the same model.

5. Push the new power supply module into the power bay until you hear a click.

6. Plug the AC power cord back into the module and power up the server.

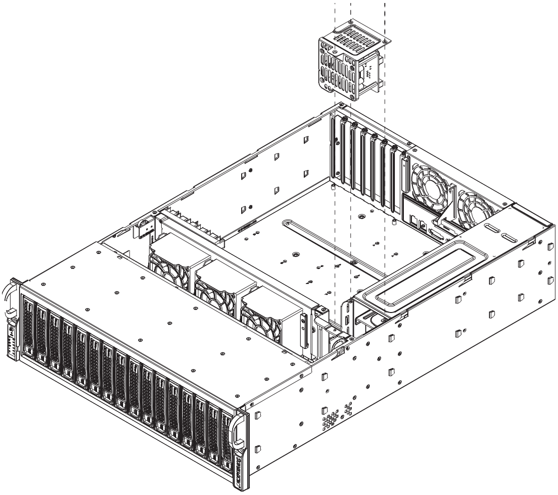


Figure 4-7: Changing the Power Distributor

Server chassis that are 2U or higher require a power distributor. The power distributor provides failover and power supply redundancy. In the unlikely event you must change the power distributor, do following:

Changing the Power Distributor

1. Power down the server and remove the plug from the wall socket or power strip.

2. Remove all cable connections to the power supply from the motherboard, backplane, and other components. Also, remove both power supplies.

3. Locate the power distributor between the power supply and the fan row.

4. Remove the three screws securing the power supply.

5. Gently pull the power distributor from the chassis. Gently guide all the cables through the power distributor housing.

6. Slide the new power distributor module into the power distributor housing. Make that you slide the cables through the bottom of the housing.

7. Reconnect all the power cables, replace the power supply, and insert the plug into the wall.

Notes

Chapter 5

Rack Installation

5-1 Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time.

5-2 Unpacking the System

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold your chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Be sure to read the Rack and Server Precautions in the next section.

5-3 Preparing for Setup

The box your chassis was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Please read this section in its entirety before you begin the installation procedure which is outlined in the sections that follow.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches).

- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.

- This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and others).

Warnings and Precautions!

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

General Server Precautions

- Review the electrical and general safety precautions that came with the components you are adding to your chassis.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug hard drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

5-4 Rack Mounting Instructions

This section provides information on installing the SC936 chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

NOTE: This rail will fit a rack between 26" and 33.5" deep.

Identifying the Sections of the Rack Rails

The chassis package includes two rack rail assemblies : an inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

Inner Rail Extension

The SC936 chassis includes a set of inner rails in two sections: inner rails and inner rail extensions. The inner rails are preattached and do not interfere with normal use of the chassis if you decide not to use a server rack. Attach the inner rail extension to stabilize the chassis within the rack.Installing the Inner Rails

1. Place the inner rack extensions on the side of the chassis, aligning the hooks of the chassis with the rail extension holes. Make sure the extension faces "outward" just like the pre-attached inner rail.

2. Slide the extension toward the front of the chassis.

3. Secure the chassis with screws as illustrated.

4. Repeat steps 1-3 for the other inner rail extension.

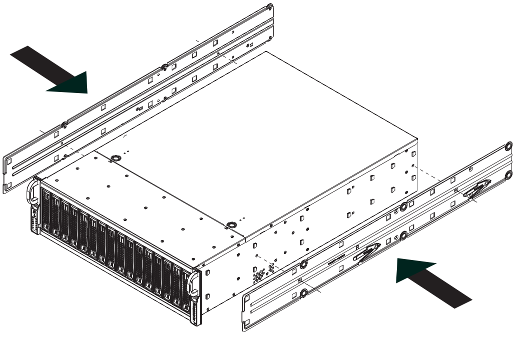


Figure 5-1: Identifying the Sections of the Rack Rails

Installing the Outer Rails to the Rack

1. Attach the short bracket to the outside of the long bracket. You must align the pins with the slides. Also, both bracket ends must face the same direction.

2. Adjust both the short and long brackets to the proper distance so that the rail fits snugly into the rack.

3. Secure the long bracket to the front side of the outer rail with two screws and the short bracket to the rear side of the outer rail with three screws.

4. Repeat steps 1-4 for the left outer rail.

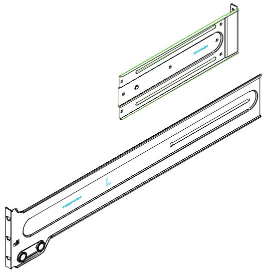


Figure 5-2: Outer Rails

Installing the Chassis Into a Rack:

1. Confirm that chassis inner rails and outer rails are installed on the rack.

2. Line chassis rails with the front of the rack rails.

3. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (it may be necessary to depress the locking tabs when inserting). When the server has been pushed completely into the rack, you should hear the locking tabs "click" into position.

4. (Optional) Insert and tightening the thumbscrews that hold the front of the server to the rack.

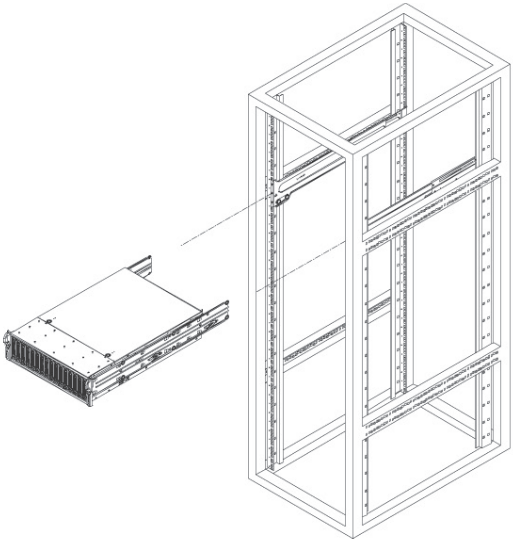


Figure 5-3: Installing the Outer Rails to the Server Rack

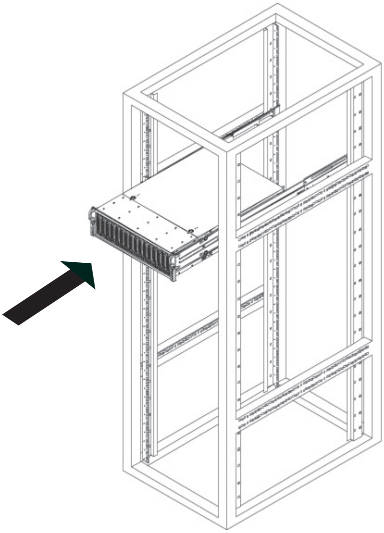


Figure 5-4: Installing the Rack Rails

Appendix A

Cables, Screws, and Other Accessories

A-1 Overview

This appendix lists supported cables for your chassis system. It only includes the most commonly used components and configurations. For more compatible cables, refer to the manufacturer of the motherboard you are using and our Web site at: www.supermicro.com.

A-2 Cables Included with SC936 Chassis

SC936A-R900B, SC936E1-R900B and SC936E2-R900B			
Part #	**Type**	**Length**	**Description**
CBL-0117L-01	Cable	75cm	IPASS to 4-lane SAS cable
CBL-0108L-02	Cable	39cm	IPASS to IPASS cable
CBL-0169L	Cable	55cm	2U DVD cable
CBL-0166L	Cable	87cm	SAS-933EL2/EL1 BP cascading cable
CBL-0168L	Cable	62cm	SAS-933EL2 BP 2-port INT cascading cable

A-3 Compatible Cables

These cables are compatible with the SC936 Chassis.

Alternate SAS Cables

Some compatible motherboards have different connectors. If your motherboard has only one SAS connector that the SAS cables must share, use one of the following cables. These cables must be purchased separately.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0175L
Alt. Name: "Big Four"

Description: This cable has one SFF-8484 (32 pin) connector on one end and 4 SAS connectors (7 pins each) at the other. This cable connects from the Host (motherboard or other controller) to the backplane SAS hard drive port.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0116
Alt. Name: iPass or "Small Four"

Description: This cable has one ipass (SFF-8087/mini-sas) connector (36 pins) at one end and 4 SAS connectors on one end. This cable connects from the Host (motherboard or other controller) to the backplane SAS hard drive port.

Extending Power Cables

Although Supermicro chassis are designed with to be efficient and cost-effective, some compatible motherboards have power connectors located in different areas.

To use these motherboards you may have to extend the power cables to the mother boards. To do this, use the following chart as a guide.

Power Cable Extenders		
Number of Pins	**Cable Part #**	**Length**
24 pin	**CBL - 0042**	**7.9”(20 cm)**
20 pin	**CBL - 0059**	**7.9”(20 cm)**
8 pin	**CBL - 0062**	**7.9”(20 cm)**
4 pin	**CBL - 0060**	**7.9”(20 cm)**

Front Panel to the Motherboard

The SC936 chassis includes a cable to connect the chassis front panel to the motherboard. If your motherboard uses a different connector, use the following list to find a compatible cable.

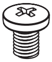
Front Panel to Motherboard Cable (Ribbon Cable)		
Number of Pins (Front Panel)	**Number of Pins (Motherboard**	**Cable Part #**
16 pin	**16 pin**	**CBL - 0049**
16 pin	**20 pin**	**CBL - 0048**
20 pin	**20 pin**	**CBL - 0047**
16 pin	**various***	**CBL - 0068**
20 pin	**various***	**CBL - 0067**

* Split Cables: Use these cable if your motherboard requires several different connections from the front panel.

A-4 Chassis Screws

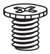
The accessory box includes all the screws needed to setup your chassis. This section lists and describes the most common screws used. Your chassis may not require all the parts listed.

M/B



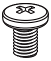
Pan head
6-32 x 5 mm
[0.197]

HARD DRIVE

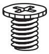


Flat head
6-32 x 5 mm
[0.197]

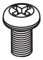
DVD-ROM, CD-ROM, and FLOPPY DRIVE



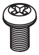
Pan head
6-32 x 5 mm
[0.197]



Flat head
6-32 x 5 mm
[0.197]

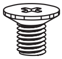


Round head
M3 x 5 mm
[0.197]

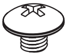


Round head
M2.6 x 5 mm
[0.197]

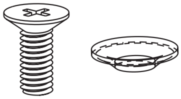
RAIL



Flat head
M4 x 4 mm
[0.157]

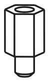


Round head
M4 x 4 mm
[0.157]

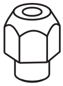


Flat head
M5 x 12 mm[0.472]
Washer for M5

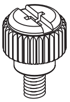
M/B STANDOFFS



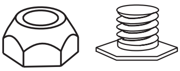
M/B standoff
6-32 to 6-32



M/B (CPU)
standoff
M5 to 6-32



Thumb screw
6-32 x 5 mm
[0.197]



1/U M/B standoff
6-32 x 5 mm
[0.197]

Appendix B
Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

SC936A-R900B, SC936E1-R900B and SC936E2-R900B	
	Redundant 900W
MFR Part #	PWS-902-1R
AC Voltage	100 - 240V 50 - 60Hz 13 - 4 Amp
+5V	30 Amp
+5V standby	4 Amp
+12V	75 Amp
-12V	0.6 Amp
+3.3V	24 Amp

Notes

Appendix C

SAS-936A Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

C-1 ESD Safety Guidelines

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the RAID card by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

C-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the backplane.
- Disconnect the power cable before installing or removing any cables from the backplane.
- Make sure that the backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

C-3 A Note to Users

- All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

Jumper Settings and Pin Definitions

C-4 Front Connectors and Jumpers

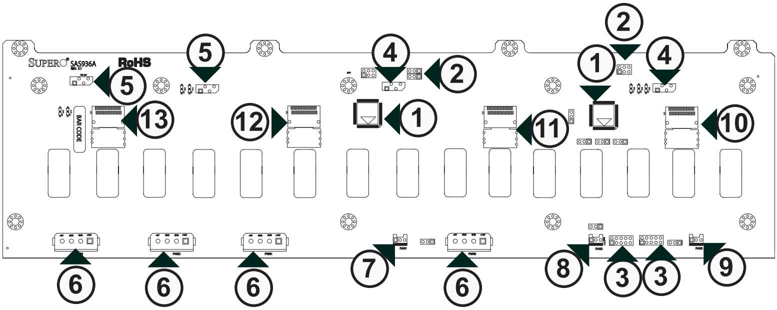


Figure C-1: Front Connectors

Front Connectors

1. Chip: MG9072
2. Upgrade Connectors: JP69 and JP78
3. ACT_IN: JP26 and JP47
4. I^{2}C Connector #1 (JP37) and #2 (JP95)
5. I^{2}C Connector #3 (JP52) and #4 (JP96)
6. Power Connectors (4-pin): JP10, JP13, JP46 and JP48.
7. Fan Connector, Fan#1 JP54
8. Fan Connector, Fan#2 JP56
9. Fan Connector, Fan#3 JP58
10. SAS IN#1 JSM1
11. SAS IN#2 JSM2
12. SAS IN#3 JSM3
13. SAS IN#4 JSM4

C-5 Front Connector and Pin Definitions

1. MG9072 Chip

The MG9072 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

2. Upgrade Connectors

The upgrade connectors are designated JP69, and JP78 are used for manufacturer's diagnostic purposes only.

3. ACT_IN:

The activity LED connectors, designated JP26, and JP47 are used to indicate the activity status of each SAS drive. The Activity LED connector is located on the front panel. For the Activity LED connector to work properly, connect using a 10-pin LED cable. This is only used when the Activity LED is not supported by the hard drive.

SAS Activity LED Header Pin Definitions (JP26)

Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Ground	10	Empty

SAS Activity LED Header Pin Definitions (JP47)

Pin #	Definition	Pin #	Definition
1	ACT IN#8	6	ACT IN#12
2	ACT IN#9	7	ACT IN#13
3	ACT IN#10	8	ACT IN#14
4	ACT IN#11	9	ACT IN#15
5	Ground	10	Empty

4. and 5. I^{2}C Connectors

The I^{2}C Connectors, designated JP37, JP95, JP52, and JP96 are used to monitor HDD activity and status. See the table on the right for pin definitions.

I^{2}C Connector Pin Definitions (JP37, JP95, JP52 and JP96)

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

6. Backplane Main Power Connectors

The 4-pin connectors, designated JP10, JP13, JP46 and JP48, provide power to the backplane. See the table on the right for pin definitions.

Backplane Main Power 4-Pin Connector (JP10, JP13, JP46, and JP48)

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

7., 8. and 9. Fan Connectors

The 3-pin or 4-pin connectors, designated JP54, JP56, and JP58 provide power to the fans. See the table on the right for pin definitions.

Fan Connectors (JP54, JP56 and JP58)

Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	No Connection

10. - 13. SAS IN Ports (Sideband included)

The SAS ports are used to connect the SAS drive cables. The four SAS IN ports are designated #JSM1 - #JSM4. Each port is also compatible with SATA drives.

Note: SGPIO is the default setting for this backplane

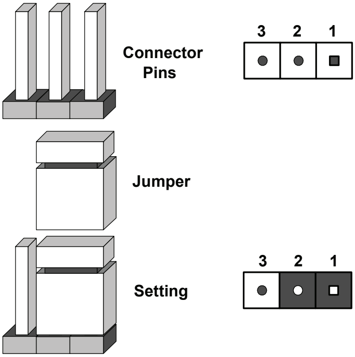
Sideband Definitions (JSM1 - JSM4)

Pin #	Definition	Pin #	Definition
A11	**SGPIO:** SDIN **I²C:** Backplane Addressing (SB5)	B11	Controller ID (SB6)
A12	**SGPIO:** SDOUT **I²C:** Reset (SB4)	B10	GND (SB2)
A9	GND (SB3)	B9	**SGPIO:** SLOAD **I²C:**SDA (SB1)
A8	Backplane ID (SB7)	B8	**SGPIO:** SCLOCK **I²C:**SCL (SB0)

C-6 Front Jumper Locations and Pin Definitions

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.


3 2 1
Connector Pins
Jumper
Setting
3 2 1

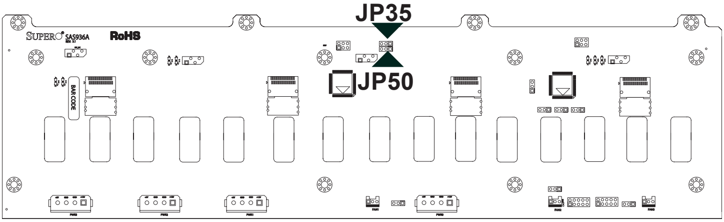

JP35
JP50
SUPERO
SAS936A
RoHS
BAR CODE

Figure C-2: Jumper Locations

Jumper Settings

Jumper	Jumper Settings	Note
JP35	1-2: Reset 2-3: Default	MG9072 Chip Reset #1
JP50	1-2: Reset 2-3: Default	MG9072 Chip Reset #2

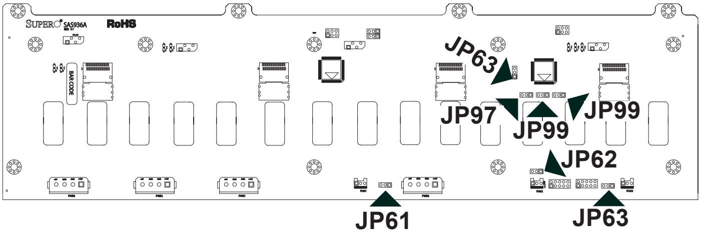

SUPERO SAS936A
RoHS
BAR CODE
JP63
JP97
JP99
JP99
JP62
JP61
JP63

Figure C-3: Fan Jumper Locations

Fan Jumper Settings

This backplane can use up to four fans. To utilize each fan, you must configure **both jumpers** as instructed below.

Fan Jumper Settings

Jumper	Jumper Settings	Note
JP61	1-2:With Fan (Default) 2-3:No Fan	FAN#1
JP97	1-2:With Fan (Default) 2-3:No Fan	FAN#1
JP62	1-2:With Fan (Default) 2-3:No Fan	FAN#2
JP98	1-2:With Fan (Default) 2-3:No Fan	FAN#2
JP63	1-2:With Fan (Default) 2-3:No Fan	FAN#3
JP99	1-2:With Fan (Default) 2-3:No Fan	FAN#3

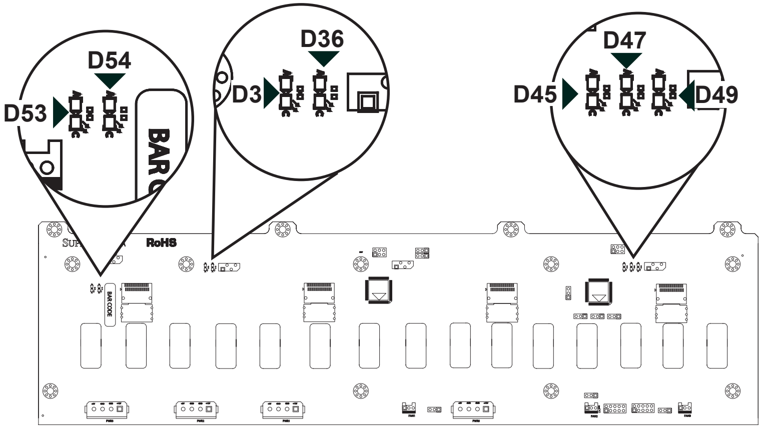
I^{2}C and SGPIO Modes and Jumper Settings

This backplane can utilize I^{2}C or SGPIO. SGPIO is the default mode and can be used without making changes to your jumper. The following information details which jumper must be configured to use SGPIO mode or restore your backplane to I^{2}C mode.

SGPIO Setting (Default)		
Jumper	**Jumper Setting**	**Note**
JP84	1-2	SGPIO Mode Setting

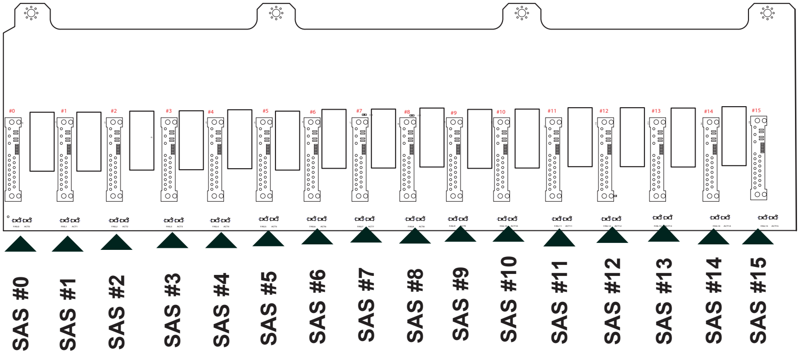
I^{2}C Setting		
Jumper	**Jumper Setting**	**Note**
JP84	2-3	I^{2}C Setting

Front LED Indicators



Front Panel LEDs		
LED	**STATE**	**SPECIFICATION**
D45	ON	Failure in Fan #1.
D47	ON	Failure in Fan #2.
D49	ON	Failure in Fan #3.
D3	ON	Alarm #1: Overheat/Drive Failure/Fan Failure in Channels 0-7.
D36	ON	Alarm #2: Overheat/Drive Failure in Channels 8-15.
D53	OFF	+5V : Backplane power failure. Light is on during normal operation.
D54	OFF	+12V : Backplane power failure. Light is on during normal operation.

C-7 Rear Connectors and LED Indicators


SAS #0
SAS #1
SAS #2
SAS #3
SAS #4
SAS #5
SAS #6
SAS #7
SAS #8
SAS #9
SAS #10
SAS #11
SAS #12
SAS #13
SAS #14
SAS #15

Rear SAS/SATA Connectors

Rear Connector	SAS Drive Number	Rear Connector	SAS Drive Number
SAS #0	SAS/SATA HDD #0	SAS #12	SAS/SATA HDD #12
SAS #1	SAS/SATA HDD #1	SAS #13	SAS/SATA HDD #13
SAS #2	SAS/SATA HDD #2	SAS #14	SAS/SATA HDD #14
SAS #3	SAS/SATA HDD #3	SAS #15	SAS/SATA HDD #15
SAS #4	SAS/SATA HDD #4	SAS #16	SAS/SATA HDD #16
SAS #5	SAS/SATA HDD #5	SAS #17	SAS/SATA HDD #17
SAS #6	SAS/SATA HDD #6	SAS #18	SAS/SATA HDD #18
SAS #7	SAS/SATA HDD #7	SAS #19	SAS/SATA HDD #19
SAS #8	SAS/SATA HDD #8	SAS #20	SAS/SATA HDD #20
SAS #9	SAS/SATA HDD #9	SAS #21	SAS/SATA HDD #21
SAS #10	SAS/SATA HDD #10	SAS #22	SAS/SATA HDD #22
SAS #11	SAS/SATA HDD #11	SAS #23	SAS/SATA HDD #23

Rear LED Indicators

Rear LED	Hard Drive Activity	Failure LED
SAS #0	D12	D5
SAS #1	D13	D6
SAS #2	D14	D7
SAS #3	D15	D8
SAS #4	D18	D19
SAS #5	D21	D20
SAS #6	D22	D23
SAS #7	D24	D29
SAS #8	D25	D30
SAS #9	D26	D31
SAS #10	D27	D32
SAS #11	D28	D33
SAS #12	D40	D37
SAS #13	D41	D38
SAS #14	D42	D39
SAS #15	D87	D88